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Presentations and complications of diabetes patients presenting to diabetic clinic of Eastern Nepal

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ABSTRACT

Objective

Diabetes mellitus leads to damage, dysfunction and failure of various organs especially eyes, kidneys, nerves and heart. The latency of occurence of hyperglycemia and diagnosis may be of long duration. This study was aimed to find out the mode of presetation of diabetes mellitus in diabetic patients attending out patients clinic of B P Koirala Institute of Health Sciences. Associated complications and comorbid condition present at the time of presenation were also studied.

Methods

The diabetic patients attending the Diabetic Out Patient Clinic of B P Koirala Institute of Health Sciences during June 2006 to June 2007 were included in this study.The patients details were collected from the predefined Proforma for diabetes patient from the database. This included demographic data, biochemical parameters and diabetic complications. For the purpose of study a total of 775 patients were randomly selected.The Data collected were entered and analysed using excel and SPSS(version 11.5)

Results

Out of 775 cases 436 (56.3%) were male and 339(43.7%) were female. Majority of patients 81.55% (n=632) had osmotic sympmtoms or symptoms related to complication of diabetes at the time of presentation to the clinic. Asymptomatic patient constituted 18.45% (n=143). The most common presenting complaints were polyuria (44.58%), followed by polydypsia (39.62%) and polyphagia (24.88%). About 54.97% (n=426) had symptoms of complications related to diabetes. Among them most common complication was neurological (39.67%), followed by renal (10.8%) metabolic (4.93%), cardiac(4.46%), autonomic neuropathy (4.93%) and peripheral vascular disease (3.99%).

Conclusion

Majority of the patients presenting in our OPD had osmotic symptoms or symptoms related to complication of diabetes. Access to diabetes care and lack of awareness of the disease and its complication might had contributed to this. Community awareness, program for early detection and managemnet may help proper diabetes care and prevention of complications.

Key Words: Diabetes mellitus, complication, presentation.

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INTRODUCTION

Diabetes mellitus(DM) is a group of metabolic syndrome characterized by hyperglycemia resulting from defects in insulin secretion, insulin action or both. It is associated with long term damage, dysfunction and failure of various organs especially eyes, kidneys, nerves and heart.[1] It affects almost 6% of the world´s population & prevalence of this chronic disease is increasing.[2] According to WHO, 180 million people worldwide had diabetes in 2006 and this number is likely to double by 2030.[3] As a result of changing life style and aging, the prevalence of DM is rapidly increasing around the world.[4] Nepal is also seing the increasing prevalence of diabetes similar to neighbouring countries in South asia.[13] However lack of awareness about the disease, its consequences and lack of quality care in diabetes lead to delayed presentation to health care giver that might be associated with more number of complication and co-morbid condition of the disease. Therefore, we undertook this study to find out the mode of presentation of diabetes mellitus in diabetetic patients attending out patients clinic (RDPC OPD) of BPKIHS.Associated complications and comorbid condition present at the time of presenation were studied.

METHODS

The diabetic patients attending the RDPC OPD of BPKIHS during June 2006 to June 2007 were included in this study.The patients details were collected from the predefined Proforma for diabetes patient from the database. This included demographic data(name, age, sex, cast, occupation, address) biochemical parameters (blood sugar random, post parandial, fasting; glycated Hb; urea; creatinine; lipid profile; electrolytes) and diabetic complications.Neurological complications was defined by presence of paraesthesia, numbness, foot drop, wrist drop, mono neuropathy, radiculopathy. Diabetic ketoacidosis, hypoglycemia, hyperosmolar coma was defined as metabolic complications. Cardiac complications was diagonsed by presence of angina, acute myocardial infarction, left ventricular failure, and congestive heart failure. Intermittent claudication, non'healing ulcer and gangrene fulfilled the definition for peripheral vascular complication. Renal complication was defined by oliguria, raised serum creatinine and proteiuria. Autonomic neuropathy was diagnosed by standard bedside autonomic function test.

During this period, the total number of patients attending the diabetetic out patients clinic (RDPC OPD) and medicine OPD of BPKIHS were 1346 and 22,228 respctively. So, the point prevalence of diabetes was 6.06%. For this study a total of 775 patients were randomly selected according to WHO recommended software (EPI Info 2000) to determine the sample size. The Data collected were entered and analysed by Microsoft office excel and statistical package for the social sciences (SPSS Version 11.5).The tests used were Pearson´s Chi-square test.

RESULTS

Out of 775 cases 436 (56.3%) were male and 339(43.7%) were female. The mean age was 52.62±12.5 years (range: 16 yrs to 90 yrs). Majority (55.48%) of the patients were between 40-60 years of age. Type 2 Diabetes mellitus (T2DM) constituted 763 (98.5%) while 12 (1.5%) were Type-1 Diabetes mellitus. Positive family history of diabetes was present in 38% in T2DM.

Majority patients (56.77%) had normal BMI (18.5-24.9) while 35.1% (n=272) of patients had BMI above normal and 8.13% had below normal BMI as per WHO criteria. Table 1 shows the distribution of BMI.

When BMI of e"23Kg/m^2 is considered for determining over-weight as recommended for Asian (WHO, 2002) 60.12% had BMI above normal (e"23kg/m^2).

Table 1: Distribution of BMI

Age group	BMI(kg/m^2)				Total	P Value
	<18.5	18.5-24.9	25-29.9	e"30		
<40	17	59	25	5	106	0.001
40 – 50	`14	120	64	5	203	
50 – 60	11	124	81	11	227	
60 – 70	12	86	45	8	151	
e" 70	9	51	18	10	88	
	63	440	266	39	775	
	(8.13%)	(56.77%)	(30.06%)	(5.03%)		

Majority of patients 81.55% (n=632) had osmotic sympmtoms or symptoms related to complication of diabetes at the time of presentation to the clinic. Asymptomatic patient constituted 18.45% (n=143). Among symptomatic patients the most common presenting complaints were polyuria (44.58%), followed by polydypsia (39.62%) and polyphagia (24.88%).

About 54.97% (n=426) had symptoms and/or complications related to diabetes.

The distribution of the complication and presenting symptoms are shown in table 2. Most common presentation was due to osmotic smptoms.

Table 2: Symptoms and complication at the time of presentation to the clinic.

Symptoms/complication	No. of Patients	Percentage
Constitutional	339	79.58
Neurological	169	39.67
Renal	46	10.8
Metabolic	21	4.93
Autonomic neuropathy	21	4.93
Cardiac	19	4.46
Peripheral vascular	17	3.99

The development of metabolic complication (Pd"0.0001) was strongly associated with duration of diabetes. It was observed that renal (p=0.027), neurological (p=0.149), peripheral vascular (p=0.562) and cardiac (p=0.946) complication were not related to duration of diagnosed diabetes.

DISCUSSION

Worldwide prevalence and incidence of diabetes is increasing. Type 2 diabetes mellitus may remain asymptomatic for varying duration before diagnosis and may present with complications of the disease. In this scenario it is challenging for clinicain to diagnose the disease at its initial stage, in absence of routine health check up program in the country. The occurence of the Type 2 diabetes mellitus progressively increases with age. Present study shows diabetes mellitus to be the most common in the age group of 50-60 years in the population presenting to the hospital with complications or symptoms. As the complications of diabetes starts after 10 to 15 years of the disease onset, it suggest that the occurence of disease may be earlier in our populaion then the Western counterpart. Similar observations were also made in the study conducted in BPKIHS[4] and NMCTH , Birgunj,[13] but higher than that observed in Saudi Arabian population.[14]

Our study shows relatively high rate of Type 2 diabetes mellitus in male (56.3%) compared to female (43.7%), which was similar to results shown in studies conducted in western Nepal,[15] but a study conducted in europe showed an increased prevalence in females.[16] However, this difference may be related to the health seeking behabiour of our society.

There are several studies conducted worldwide to show association of genetic factors with diabetes mellitus [5-8] (an extremely heterogenous disorder) and this is refelcted in the family history of Type 2 diabetes mellitus. We found 38.19% of the patients suffering from diabetes mellitus had a positive family history. The positive family history was higher than that reported from neighbouring country in Chandigarh, India study.[21]

Obesity is an independent risk factor for Type 2 diabetes mellitus.[17] Increase in the prevalence of Type 2 diabetes mellitus upto 28 times was reported in obese than non-obese individual.[18] Interestingly, an increase in BMI even at relatively low levels in previously normal weight individual greatly increases the risk of diabetes.[19] Various researches have done work worldwide to show unique relation between high BMI and risk of development of DM.[10,11] When BMI was adjusted for the WHO-Asian indicators of overweght and obesity (e"23 kg/m^2 as overweight), 66% males and 55% females were either overweight or obese. Similar findings were reported from a study done in Western Nepal (64% male & 72.4% female).[20] The modernization, industrialization and sedentery lifestyle have been implicated as the major risk factor in the development of Type 2 diabetes mellitus. Type 2 diabetes mellitus is prevantable by adopting healthy lifestyle is illustrated by Finland study.[9] This kind of healthy lifestyle implimentation should be promoted in Nepal also as there is rapid industrialization, urbanization, availability of cheap energy dense foods in the market forecasting future rise of obesity and obesity related diseases including Type2 diabetes mellitus.

Diabetes mellitus has always been known with the disease of 3P's - polyuria, polyphagia and polydypsia. In our study about 50.63% of the symptomatic patients presented with these symptoms, 44.58% patients presented with polyuria, 39.62% with polydypsia and 24.88% with polyphagia, the results were found higher

than the study done in Chandigarh that reported polydypsia and polyuria 25.7% and 31.1% respectively.[21] The other common presenting symptoms were neurological symptoms (8.54%), weight loss (4.59%), diminished vision (3.01%), swelling leg (2.68%) and abdominal pain/discomfort (2.05%).

The most common complication in our study in terms of neurological, renal and metabolic complications were comparable to study done in Chandigarh,[21] in which peripheral neurpathy was the commonest complication(45.9%). Singh NP et al reported that peripheral neuropathy was present in 52% of their cohort at the time of presentation.[23] Similar study done by C.cardoso, G.Salles in Brazil shows lower result of neuropathy (15.5%) but higher result of nephropathy(19.1%).

Hypertension is common co-morbid condition in population with Type2 diabetes mellitus. Among the comorbidites, hypertension was found in 280 patients (36.13%), which is less than as compared to study by S Puria (41.9%).[21]

CONCLUSION

It is essential to understand the burden of diabetes mellitus in daily functioning and in the society. Majority of the patients presenting in our OPD had osmotic symptoms or symptoms related to complication of diabetes. Access to diabetes care and lack of awareness of the disease and its complication might had contributed to this. Community awareness program for early detection and management may help in preventing complications related to Type2 diabetes mellitus.

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